

GARDEN TRACTOR



MODELS

147-650
147-652
147-655
147-660
147-665



- 2 WHEEL BRAKES
- AUTOMOTIVE STEERING
- 3 FORWARD SPEEDS and REVERSE

MTD PRODUCTS, INC. • 5389 WEST 130th ST. • P.O. BOX 2741 • CLEVELAND, OHIO 44111

WARRANTY

For one year from date of purchase, MTD Products Inc will replace for the original purchaser, free of charge, F.O.B. factory or authorized service firm, any part or parts found to be defective in material or workmanship. All transportation charges on parts submitted for replacement under this warranty must be paid by the purchaser. This warranty does not include replacement parts which become inoperative through misuse, excessive use, accident, neglect, improper maintenance or alterations by unauthorized persons. This warranty does not include the engine, motor, battery, battery charger or any component parts thereof. For service on these units refer to the applicable manufacturer's warranty.

The above warranty will apply only to the original owner and will be effective only if the warranty card has been processed. It will not apply where the unit has been used commercially.

Warranty service is available through your local authorized service dealer or distributor.

UNDER NO CIRCUMSTANCES WILL THE RETURN OF A COMPLETE UNIT BE ACCEPTED BY THE FACTORY UNLESS PRIOR WRITTEN PERMISSION HAS BEEN EXTENDED.

MODEL IDENTIFICATION

- 147-650 -- Standard Model
- 147-652 -- Standard Model with 110 volt electric starter with rewind
- 147-655 -- Standard Model with 18.00 x 9.50 Terra Tires
- 147-660 -- Standard Model with key ignition starter, 12 volt battery and Delco-Remy Starter/Generator complete with Stewart Warner ammeter
- 147-665 -- Same as 147-660 with 18.00 x 9.50 Terra Tires

SPECIFICATIONS

Cutting Width	Over All Height	Over All Width W/Mower	Over All Width W/O Mower	Turn Radius Inside	Over All Length	Weight	Tires - Rear	Tires - Front
32"	32"	34"	29"	24"	54"	320 lbs.	Standard 16.00 x 6.50 Pneumatic Terra Tires 18.00 x 9.50 Pneumatic	12.50 x 4.50 Pneumatic

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SAFETY TIPS FOR GARDEN TRACTORS AND ATTACHMENTS

Improper use of riding lawn mowers, garden tractors and attachments on the part of the operator can result in injury. To reduce this possibility, give complete and undivided attention to the job at hand.

1. Know the controls and how to stop quickly -- READ THE OWNER'S MANUAL.
2. Do not allow children to operate machine; nor adults to operate it without proper instruction.
3. Clear work area of objects which might be picked up and thrown.
4. Disengage all clutches and shift into neutral before starting motor. Keep hands, feet and clothing away from power driven parts.
5. Do not carry passengers. Keep children and pets a safe distance away.
6. Never direct discharge of any material toward by-standers nor allow anyone near machine while in operation.
7. Disengage power to any attachment and stop motor before leaving operator position.
8. Take precautions when leaving machine unattended (to avoid accidental starting, rolling away, accidental dropping of any attachment, etc.)
9. Disengage power to any attachment whenever it is not in use or when traveling from one work area to another.
10. Stay alert for holes and other hidden hazards.
11. Know what is behind you before backing up.
12. Beware of steep slopes; reduce speed on all side slopes and sharp turns to prevent tipping or losing control.
13. Don't stop or start suddenly when going uphill or downhill.
14. Use extra care when pulling loads or using heavy equipment. (Refer to your owner's manual)
15. Watch out for traffic when near roadways.
16. Handle gasoline with care -- it is highly flammable.
 - A. Use approved gasoline container.
 - B. Never add gasoline to running motor -- fill tank out of doors and wipe up spilled gasoline.
 - C. Replace gasoline cap securely.
 - D. Open doors if motor is run in garage -- exhaust gases are dangerous.
17. Keep machine in good operating condition and keep safety devices in place. Use guards as instructed in owner's manual.
18. Disengage power to any attachment and stop motor before making repairs or adjustments.

INSTRUCTIONS (Refer to Fig. 1)

INSTRUCTIONS (Refer to Pg. 13)

Tractor is completely assembled when you add 2 3/4 pints of a high quality detergent 32° F use SAE 30W. Below 32° F use the crankcase and fill the gasoline tank or gasoline." The tractor is shipped with rated to excessive pressure to protect the shipment. It is important to reduce the 15 psi before using the tractor.

(Refer to Fig. 1)

The tractor has a "choke-a-matic" choke. Move the lever all the way up to place in the choke position. The lever operates the choke, regulates speed and stops the engine.

LIFT LEVER (Refer to Fig. 1)

The lift lever is used to raise and lower the tractor such as the mower unit or snow blade position. To operate the lift lever, push the lever, depress the push cap on the top of the lever to move the lever either direction.

T HITCH

(Refer to Fig. 1)

Fixed hitch.

TANK (Refer to Fig. 1)

Fill without opening the hood.
MAXIMUM CAPACITY.

PARKING BRAKE (Refer to Fig. 1)

The parking brake is located on the left side of the tractor. To set the parking brake depress the clutch-brake pedal as far as possible and turn the parking brake lever clockwise until it tightens and holds the clutch-brake pedal down. To release, turn the parking brake lever counter-clockwise one turn.

CLUTCH (Refer to Fig. 1)

The combination clutch and brake pedal can be operated with either foot or both by depressing the foot pedals. Depress all the way to declutch and brake. The clutch is operated by a V-Belt idler.

BRAKE (Refer to Fig. 1)

The brake is on the two rear wheels by means of a band that grips the transmission shaft. It is operated by depressing the Clutch-Brake Pedal all the way.

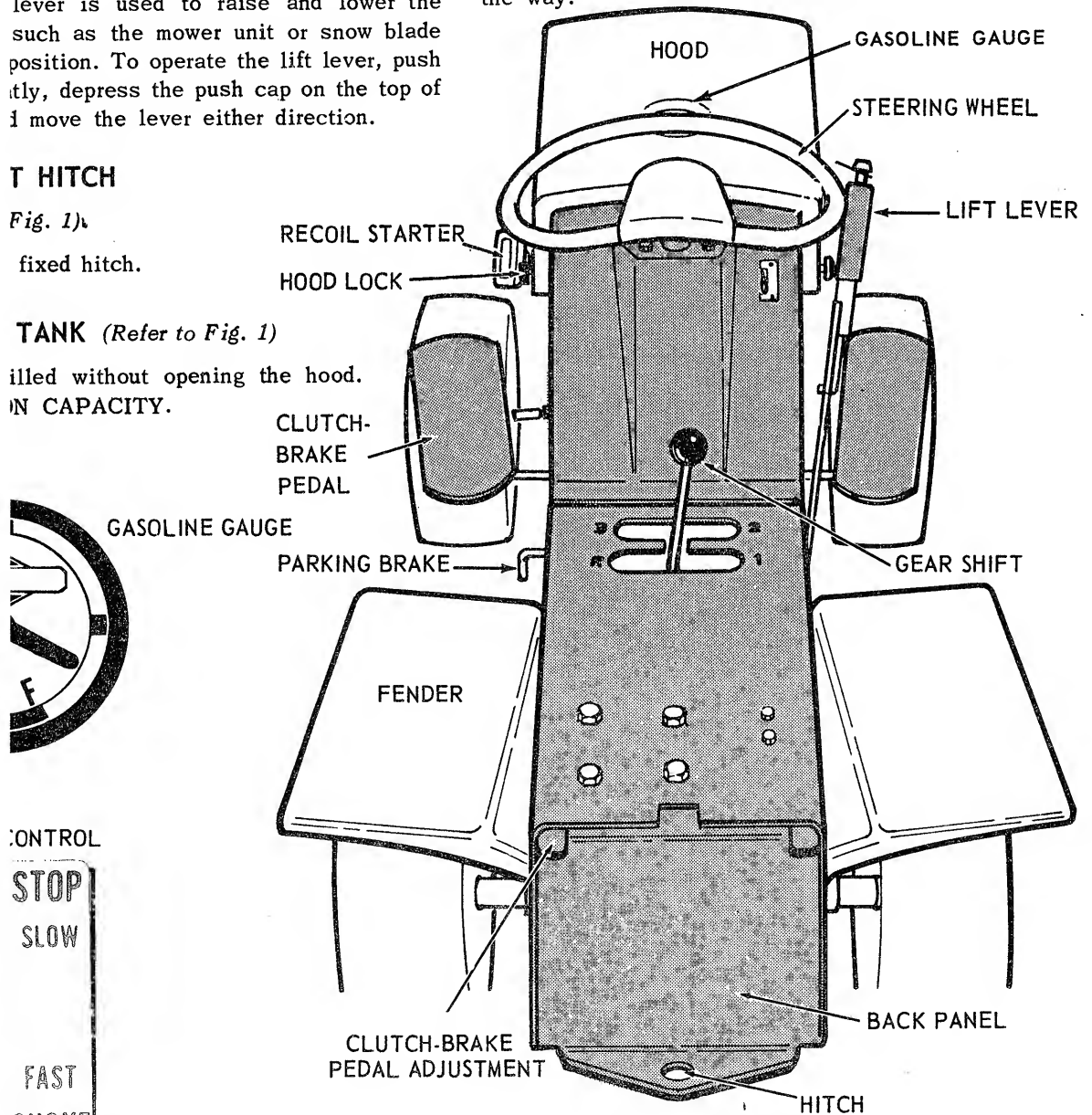


FIGURE 1

TRANSMISSION (Refer to Fig. 2)

1st Gear... To climb steep hills, to hold back the tractor on downgrades and to pull heavy loads. MAXIMUM SPEED 2 MPH.

2nd Gear... NORMAL GRASS CUTTING RANGE. MAXIMUM SPEED 4 MPH.

3rd Gear... High speed for traveling with a light load over smooth surfaces. MAXIMUM SPEED 6 MPH.

Reverse Gear... To back up the tractor.

GEAR SHIFT LEVER (Refer to Fig. 2)

Three speeds forward and one in reverse. Do not shift gears while the tractor is in motion. Pick the gear to match the workload.

FUEL SHUT-OFF VALVE AND IN-LINE FUEL FILTER

The fuel shut-off valve is to be used when the tractor is being stored for a period of time.

The in-line fuel filter is the "throw away" type. Replace the entire filter as necessary by removing the spring clips on the fuel line with a pair of pliers.

TIRE PRESSURE

Front... 15 psi

Back... 15 psi

Overinflation causes slippage of rear wheels and underinflation causes excessive wear or sometimes causes inner tube damage.

SEAT

Adjustable to four positions by removing the single hex nut under the seat spring and repositioning the seat and tightening the nut.

OPERATING YOUR TRACTOR

Your new tractor is a machine designed to eliminate the hard work connected with mowing grass and other maintenance around your yard. It is constructed of the highest quality materials throughout and will give you many years of useful service if given the

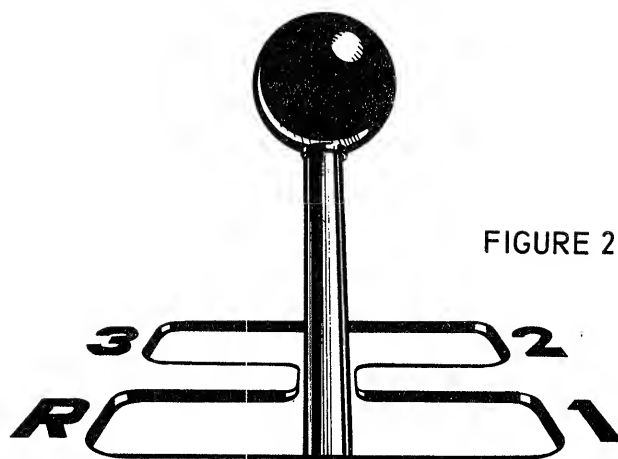


FIGURE 2

proper maintenance and care. Your tractor is not a toy, but rather a useful machine and should not be used by anyone until they fully understand the operating instructions. The safety rules noted in the front of this manual should be observed at all times.

A brief break-in period is necessary to insure maximum engine life. This consists of running the engine at half speed for a period of time required to use one tank full of gasoline. This is necessary on the initial run only. It is also recommended that the crankcase oil be changed after the first five hours of operation. This allows for the removal from the crankcase of any impurities which may have accumulated during the break-in period.

PRECAUTIONS

1. Do not fill the gasoline tank while the engine is running. Be careful not to spill gasoline on the engine.

2. Clean grass and leaves from the fins and air screen so the engine will not overheat.

3. Always remove the spark plug wire before making any adjustments or working on the unit. Turning the blade by hand can accidentally start the engine and cause injury if the sparkplug wire is connected.

TO START THE ENGINE - STANDARD MODEL (For Electric Starter Models see Pages 13 & 14)

1. Check engine oil. Fill to *Full Mark* on dipstick.
2. Be sure fuel shut off valve is open and the sparkplug wire is connected.
3. Put gear shift lever in neutral.
4. Depress clutch-brake pedal. It may be held in position by tightening the parking brake.
5. Move the throttle lever to "Choke" position.
6. While seated on the tractor pull the starter rope

with a quick steady motion with your left hand.

7. Slowly return the throttle lever to the running position after the engine has started.

PUTTING THE TRACTOR IN MOTION

1. Advance the throttle. When using the tractor for work loads, such as mowing or dozing, the engine should be running from $\frac{3}{4}$ to full throttle to prevent strain on the engine and to maintain the necessary speed of the engine to operate equipment using the tractor engine as the source of power.

2. Depress the Clutch-Brake pedal completely and move the gear shift lever to an appropriate gear to match the workload. Be sure that the tractor is *NOT* in motion when you change gears.

3. Release the Clutch-Brake pedal and you will put the tractor in motion.

4. To stop the mower, move the throttle control to "STOP" position. The ignition is automatically grounded. Keep the throttle control in "STOP" position at all times when the tractor is not in use.

LUBRICATION & MAINTENANCE

(Refer to Fig. 3)

1. **Engine** — See Engine Manual — Use high quality detergent oil. Above 32° F use SAE 30. Below 32° F use SAE 10.

2. **Transaxle** — Use SAE 90 E.P. oil.

Transaxle is lubricated with 2 pints of SAE 90 E.P. oil at the factory. For ease of checking lubricant level add another pint of the above oil until it begins to overflow through the filler plug (Part No. 52 on Pg. 12). Maintain oil at this level.

GREASE FITTINGS

3. **Steering Pins** — Use automotive multi-purpose grease. Use hand or pressure type gun.

APPLY AUTOMOTIVE MULTI-PURPOSE TYPE GREASE TO THE FOLLOWING LOCATIONS.

4. Guide slot for steering segment.
5. Pinion gear for steering.
6. Mower unit pivot pin.
7. Steering pivot pin (turn steering to either side to lubricate bearing surface).
8. Front axle pivot bolt.

APPLY MACHINE OIL TO THE FOLLOWING LOCATIONS.

9. Clutch-Brake Pedal pivot point.
10. Lift lever pivot point.
11. Idler pivot and idler arm.

The following items are permanently lubricated and require no additional lubrication.

1. All idler bearings.
2. Tie rod ends.
3. All wheel bearings.
4. All steering column bearings.

NEVER LUBRICATE OR PERFORM MAINTENANCE WHILE THE ENGINE IS RUNNING OR THE SPARKPLUG WIRE IS CONNECTED TO THE PLUG.

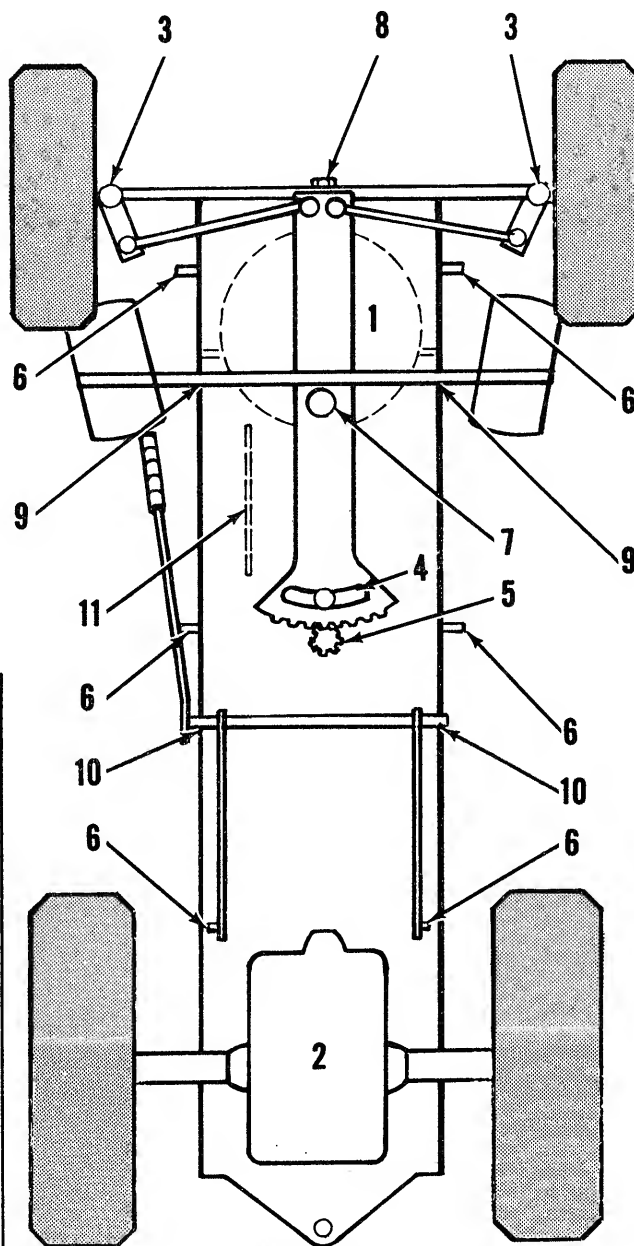


FIGURE 3

SCHEDULE OF LUBRICATION AND MAINTENANCE	SEE NOTE ON PAGE 6	AFTER EVERY 25 HRS. OF OPERATION	ONCE EACH SEASON
Change Engine Oil	(1)	X	—
Replace Fuel Filter	(2)	—	X
Clean Air Filter	(1)	X	—
Clean and Gap Spark Plug	(6)	—	X
Change Transaxle Oil	(3)	—	X
Check Tire Pressure	(4)	X	—
Grease Fittings	(5)	X	—
Oil and Grease Points		X	—

- Notes:**
1. See Engine Manual.
 2. Replace fuel filter once each season or as necessary.
 3. Drain from bottom plug. Fill and check oil level from plug on the front side of the transaxle.
 4. Front and Rear Tires 15 psi.
 5. Use hand or pressure type gun.
 6. Set plugs at .025.

ADJUSTMENTS

WHEEL ADJUSTMENT (Refer to Fig. 4 and Fig. 5)

The caster (forward slant of the kingpin) and the camber (tilt of the wheels out at the top) requires no adjustment. Automotive steering principles have been used to determine the caster and camber on the tractor.

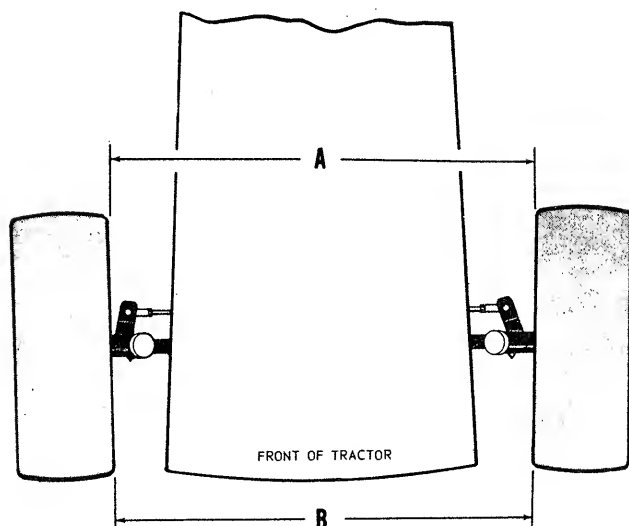
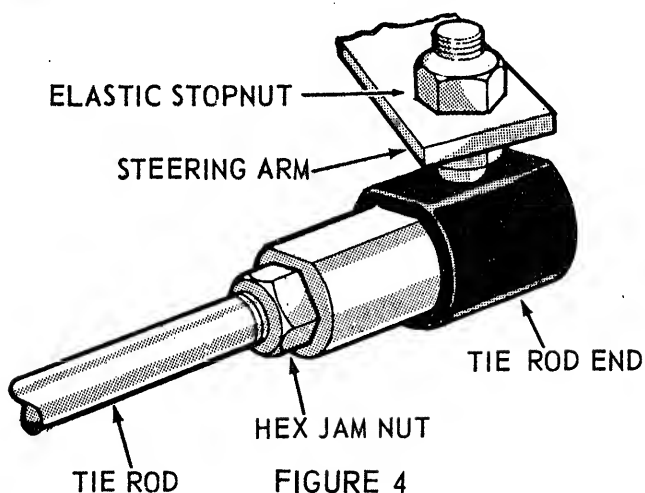


FIGURE 5

The front wheels should toe-in 1/8 inch. To adjust the toe-in, loosen the hex jam nut, remove the elastic locknut, drop the tie-rod end out of the hole in the steering arm and screw the tie-rod end in or out to make the adjustment (Fig. 4). The distance "B" must be less than "A" by 1/8 inch (Fig. 5).

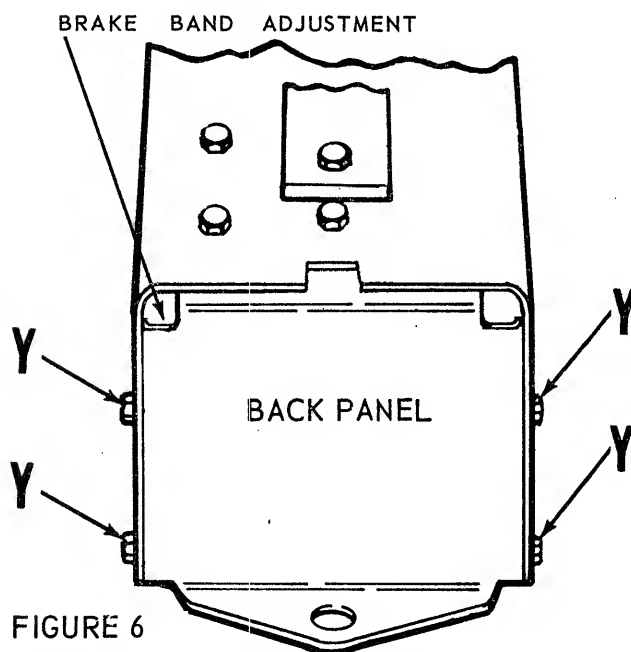
ENGINE

For engine adjustments see the engine manual.

WHEEL REMOVAL

Front . . . Loosen the set screw and remove the collar. The wheel pulls off by hand.

Rear . . . Remove the snap ring with Walde's Truarc Plier No. 4. The wheel pulls off by hand.



CLUTCH-BRAKE PEDAL ADJUSTMENT

(Refer to Fig. 6 and Fig. 7)

To adjust the angle of the clutch-brake pedal, remove the cotter pin on the clutch rod and turn the clutch rod in or out of the ferrule to obtain the most comfortable angle of the pedal when the pedal is released. After making any adjustments be sure the belt guard does not rub on the belt.

The brake adjustment is made by using a deep well socket and a wrench and turning the adjusting nut through the opening on the back panel or by using a standard wrench and removing hex bolts "Y" and removing the back panel.

The brake should be adjusted so that when the pedal is depressed completely the belt guard is *NOT* lower than the top edge of the engine pulley. Over-adjustment will cause excessive belt wear.

NOTE: DO NOT ALLOW SPRING TENSION IDLER TO PIVOT BEYOND THIS POINT WHEN BRAKE IS APPLIED. ADJUST BRAKE TO PLACE SPRING TENSION IDLER IN PROPER POSITION.

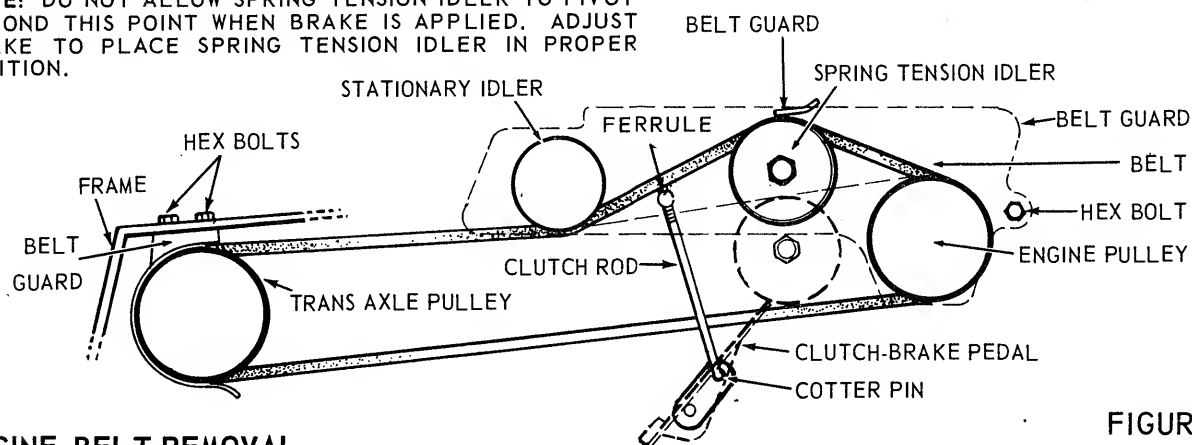


FIGURE 7

ENGINE BELT REMOVAL

(Refer to Fig. 6 and Fig. 7)

To remove the engine belt . . .

1. Remove the belt guard and the trap out assembly by removing the large hex bolt holding the belt guard in place. The belt guard can be pivoted out of the way.
2. Depress the Clutch-Brake pedal all the way and tighten the parking brake.
3. Remove the back panel and remove the two hex bolts on the right hand side of the frame under the seat and remove the rear belt guard.
4. Remove the hex nut on the spring tension idler and remove the belt guard and belt.
5. Replace belt and re-assemble.

STEERING ADJUSTMENT (Refer to Fig. 8)

The "play" or looseness of the steering can be adjusted by loosening the two hex bolts on the bracket and lightly tapping the bracket towards the front of the tractor. If the pinion gear becomes worn it can be rotated one half turn by removing the pin.

BELT ADJUSTMENT

The belts are automatically adjusted by the idlers.

STORAGE

1. Wash the tractor and remove all grass and dirt from the top of the mower and under the deck.
2. Lubricate and change oil in engine and transaxle.
3. Cover all unpainted metal parts, including the cutting edges of the blade, with a light coating of grease to prevent rust.
4. Place blocks under the frame to support the tractor so that the wheels do not touch the ground. Cover the wheels to protect from the light.
5. Drain the fuel from the tank, then run the engine until it runs out of fuel.
6. Remove the sparkplug and pour one ounce of clean engine oil into the cylinder. Rotate the engine several times to distribute the oil. Leave the spark-plug wire disconnected.
7. Cover the tractor with a tarpaulin or similar cover.

To start the tractor after being stored, remove the sparkplug and crank the engine to remove excessive oil. Clean the sparkplug and replace it. Clean the air filter, fill tank with gasoline, check oil level, open the fuel shut off valve and then start your tractor.

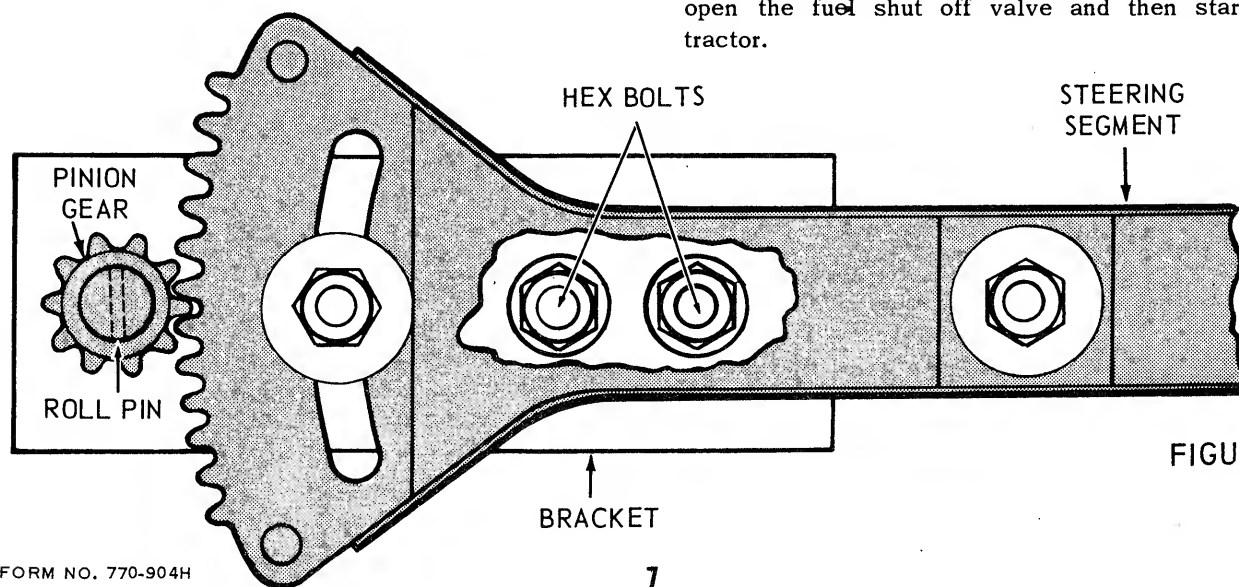
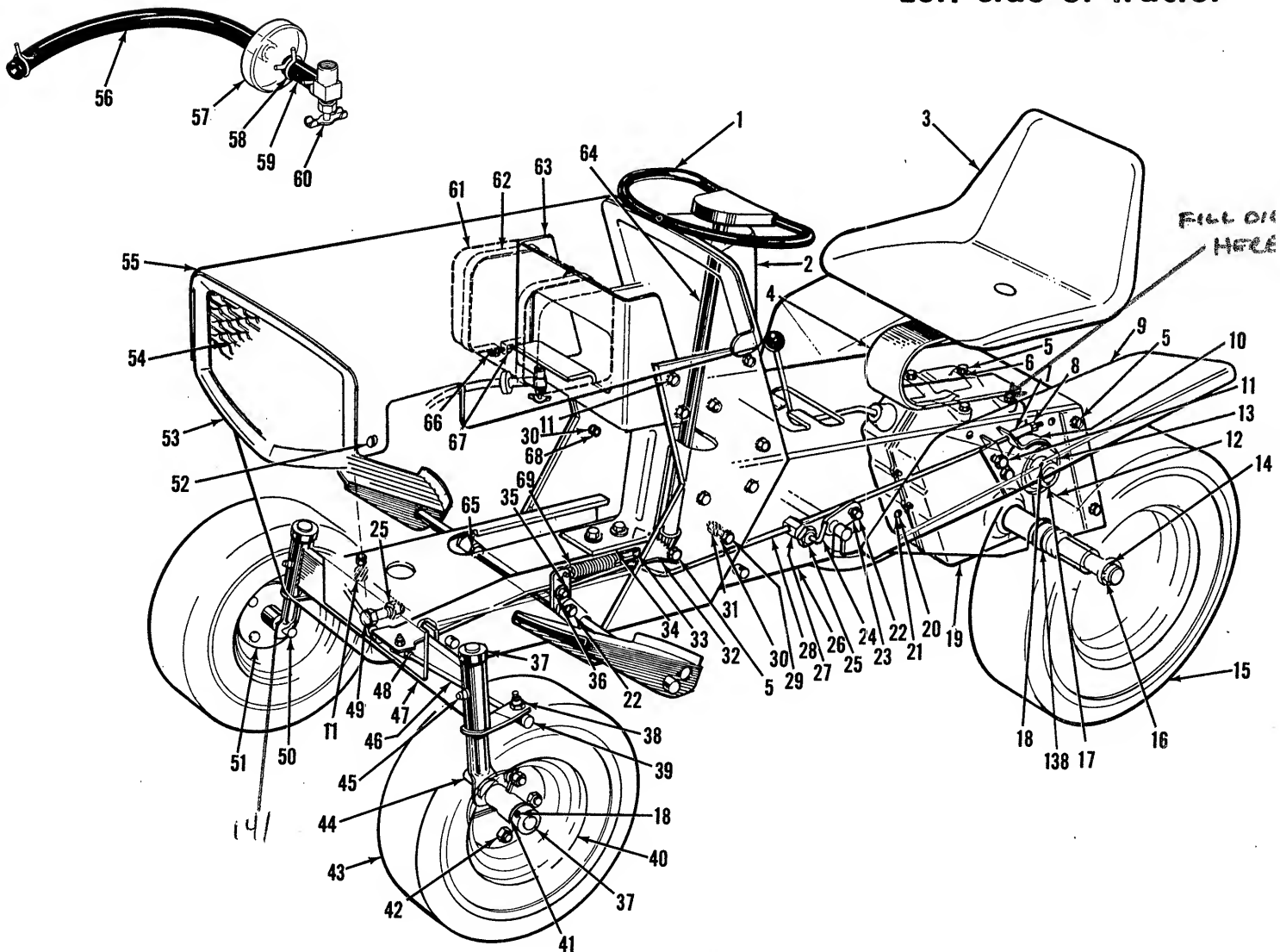


FIGURE 8

GARDEN TRACTOR

PARTS LIST FOR
MODELS NO. 147-650, -652, 655, 655, 660, 665

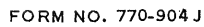
Left side of tractor



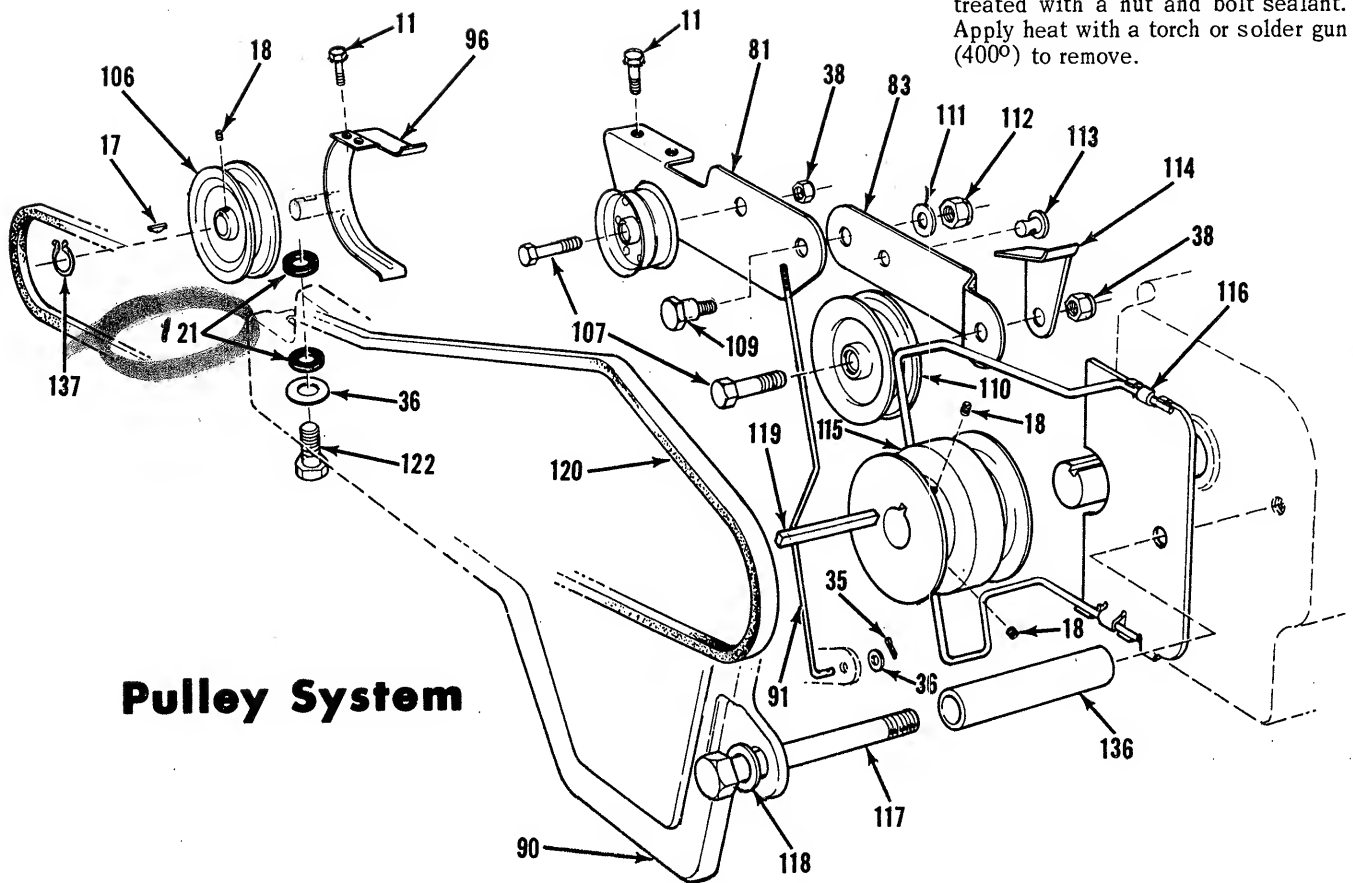
When ordering replacement parts, be sure to specify your mower model number, part number, description of part, and the number of parts required . . . Parts and service should be handled by your nearest authorized

service firm as recommended by your dealer. Request for parts and service received at the factory will be forwarded to the appropriate Central Service Distributor in your area for handling.

Right side of tractor



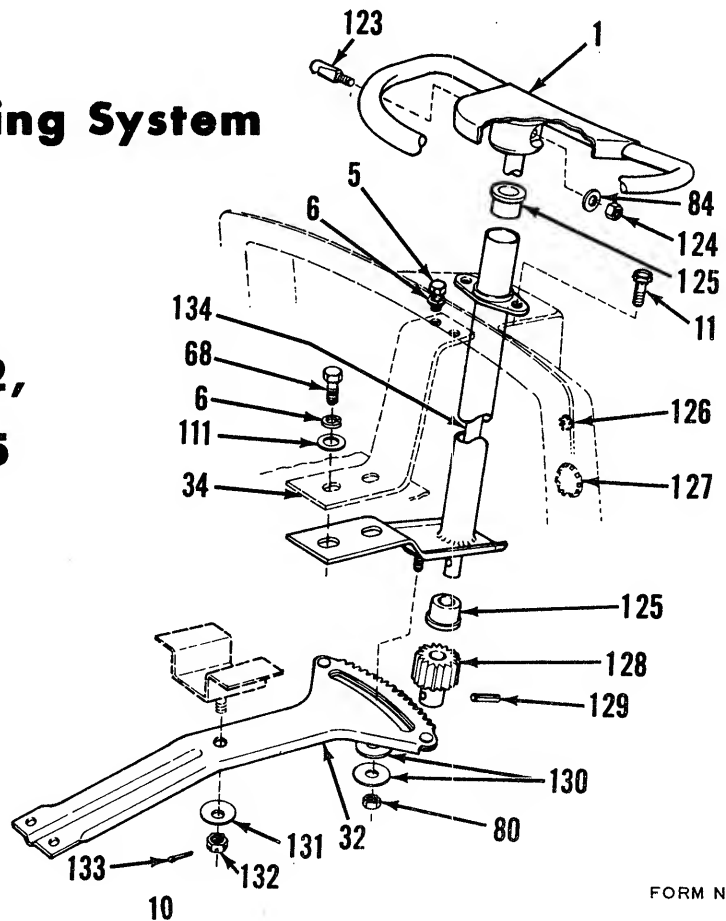
NOTE: Set screw in engine pulley is treated with a nut and bolt sealant. Apply heat with a torch or solder gun (400°) to remove.



Pulley System

Steering System

**147-650, -652,
655,-660,-665**



PARTS LIST FOR GARDEN TRACTOR MODELS 147-650, 652, 655, 660 and 665

Illus. No.	Part No.	DESCRIPTION	Illus. No.	Part No.	DESCRIPTION	Illus. No.	Part No.	DESCRIPTION
1	375-8805	Steering Wheel Assy.	43	734-219	Tube - Front 12.5 x 4.50-6	95	722-109	Knob - Shift Red
2	375-8676	Dash Panel Assy.	44	375-8609	Axle Ass'y - Front Left Hand	96	375-8618	Guard Ass'y - Belt
3	375-9199	Dash Panel Assy. 147-652 Only	45	737-107	Grease Fitting Alemite 3005	97	726-110	Push Cap +
4	312-8535	Seat Assembly	46	711-209	Tie Rod	98	736-300	Flat Washer
5	723-143	Seat Cushion (not shown)	47	375-8614	Pivot Bar Ass'y			3/8 ID x 7/8 OD x 16 Ga. *
6	723-146	Seat Spring	48	712-711	Hex Jam Nut 3/8-24 Thd. *	99	305-8818	Grip +
7	710-216	Hex Head Cap Screw 3/8-16 x 3/4 lg. *	49	710-298	Hex Hd. Bolt 5/8-18 x 3-1/2 lg. *	100	732-156	Compression Spring +
8	736-169	Spring Lockwasher 3/8 Scr. *	50	375-8608	Axle Ass'y - Front - Right Hand	101	375-8642	Left Handle Ass'y +
9	750-124	Spacer Tube +	51	312-8783	Hub Ass'y	102	736-133	Flat Washer
10	712-429	Hex Elastic Nut 5/16-24 Thd. *	52	710-255	Truss Head Machine Screw 1/4-20 x 3/4 lg. *	103	371-8694	Fender - Right Hand
11	371-8695	Fender Left Hand	53	371-8670	Grill Panel - Front	104	710-444	Hex Head Cap Screw 5/16-18 x 1 lg. *
12	310-8622	Brake Ass'y - complete	54	310-8674	Top Hood Ass'y	105	712-384	Hex Centerlock Nut 1/2-13 Thd. *
13	710-198	Sems Hex Head Cap Screw 5/16-18 x 3/4 lg. *	55	723-153	Gas Hose 10-1/2 lg. Rubber	106	756-118	Pulley
14	375-8597	Frame Plate Ass'y	56	723-154	Gas Filter Carter FN-3630-S	107	710-113	Hex Head Cap Screw 3/8-24 x 1-5/8 (Heat Treat) *
15	711-205	Brake Disc	57	723-157	Hose Clamp 1/2 OD - Eaton R8	108	756-117	Flat Idler
16	714-113	Hi Pro Key HP #708 *	58	723-152	Gas Valve Dexter	109	710-373	Shoulder Bolt
17	502-9262	Wheel Rear 16.00 x 6.50 complete	59	723-159	Gas Valve	110	756-116	V-Idler
18	312-9262	Rim Only	60	723-149	Gas Tank	111	736-300	Flat Washer
19	734-252	Tire 16.00 x 6.50 Only	61	723-151	Strap - Gas Tank			3/8 ID x 7/8 OD x 16 Ga. *
20	734-253	Tube 16.00 x 6.50 Only	62	375-8638	Battery Box Ass'y	112	712-430	Hex Elastic Nut 3/8-16 Thd. *
21	716-102	Snap Ring Truarc 5100-100 *	63	375-8602	Steering Housing Ass'y	113	711-179	Ferrule - Adjustable
22	714-314	Hi Pro Key HP #606 *	64	710-188	Allen Set Screw Cup Pnt. 1/4-28 x 3/16 lg. *	114	310-8664	Belt Keeper
23	710-421	Allen Set Screw Cup Pnt. 5/16-18 x 1/4 lg. *	65	712-492	Square Nut 1/4-20 Thd. *	115	756-113	Engine Sheave
24	717-125	Transaxle Gear Box	66	710-279	Phillips Fillister Hd. Mach. Scr. 1/4-20 x 1-3/4 lg. *	116	312-8689	Belt Trapout Brkt. Ass'y
25	710-179	Hex Head Thd. Cut. Screw 1/4-20 x 1/2 Type F *	67	710-253	Hex Hd. Cap Scr. 3/8-16 x 1 lg. *	117	710-285	Hex Head Cap Screw 1/2-20 x 3-3/4 lg. *
26	736-222	External Lockwasher 1/4 Scr. *	68	732-155	Extension Spring	118	736-114	Lockwasher 1/2 Screw *
27	710-209	Sems Hex Head Cap Screw 3/8-16 x 5/8 lg. *	69	710-385	Carriage Bolt 1/2-13 x 1 lg. *	119	714-114	Square Key 1/4 sq. x 2 lg. *
28	375-8644	Pivot Mounting Bracket	70	710-473	Truss Head Machine Screw 10-24 x 1/2 lg. *	120	754-112	V-Belt 21/32 x 80 lg. *
29	711-207	Lock Handle	71	775-664	Label - Throttle Control	121	736-161	Rubber Washer
30	712-923	Centerlock Jam Nut 5/8-18 Thd. *	72	712-147	Speed Nut 10-24 Thd. *	122	710-122	Hex Head Cap Screw 5/16-24 x 1 lg. *
31	375-8589	Frame Sub-Ass'y - Rear	73	722-111	Control Knob	123	711-191	Lock Pin
32	711-203	Ferrule - Brake Lock	74	746-126	Throttle Control (complete)	124	712-896	Hex Elastic Nut 1/4-28 Thd. *
33	711-220	Hex Head Step Bolt	75	722-119	Knob - Hood Lock Black	125	748-108	Bearing Flange
34	736-148	External Lockwasher 3/8 Scr. *	76	712-372	Hex Centerlock Nut 5/16-18 Thd. *	126	726-112	Plug Button 5/8 Dia.
35	712-798	Hex Nut 3/8-16 Thd. *	77	375-8620	Clutch Mount Brkt. Ass'y	127	726-113	Plug Button 2-3/32 Dia.
36	375-8599	Steering Segment Ass'y	78	723-155	Gas Gauge	128	717-127	Spur Gear
37	726-106	Push Cap 1/4 Dia.	79	310-8635	Clutch Bracket	129	715-247	Röll Pin 3/16 Dia. x 1 lg. *
38	375-8618	Reinforcement Brkt. Ass'y	80	736-463	Flat Washer	130	736-123	Flat Washer 11/32 ID x 1-1/2 OD x .06 *
39	714-474	Cotter Pin 1/8 Dia. x 3/4 lg. *	81	712-324	Hex Elastic Nut 1/4-20 Thd. *	131	736-112	Belleville Washer
40	748-386	Collar	82	712-267	Hex Nut 5/16-18 Thd. *			17/32 ID x 1-5/8 OD x 18 Ga. *
41	712-116	Hex Elastic Nut 3/8-24 Thd. *	83	736-119	Spring Lockwasher 5/16 Scr. *	132	712-114	Castle Nut 1/2-20 Thd. *
42	723-156	Tie Rod End	84	710-380	Ext. Lockwasher 5/16 Scr. *	133	711-115	Cotter Pin 1/8 Dia. x 1 lg. *
43	502-8218	Wheel Rim - Front	85	312-8838	Hex Head Cap Screw 5/16-18 x 1-3/4 lg. *	134	711-219	Steering Column Rod
44	748-143	Wheel Ass'y - complete	86	711-218	Belt Guard	135	310-8630	Index Bracket
45	712-181	Bearing - Flange	87	375-8591	Clutch Rod	136	750-125	Sleeve
46	712-181	Hex Nut Top Lock 3/8-16 Thd. *	88	375-8653	Frame Sub-Ass'y - Front	137	716-101	Snap Ring
47	734-218	Tire - Front 12.5 x 4.50-6	89	310-8817	Foot Pedal Ass'y	138	736-163	Washer
			90		Lift Handle Ass'y (complete)	139	312-9265	Hub Ass'y - Rear Wheel
			91			140	712-192	Cone Nuts - Rear Wheels
			92			141	748-143	305-8818

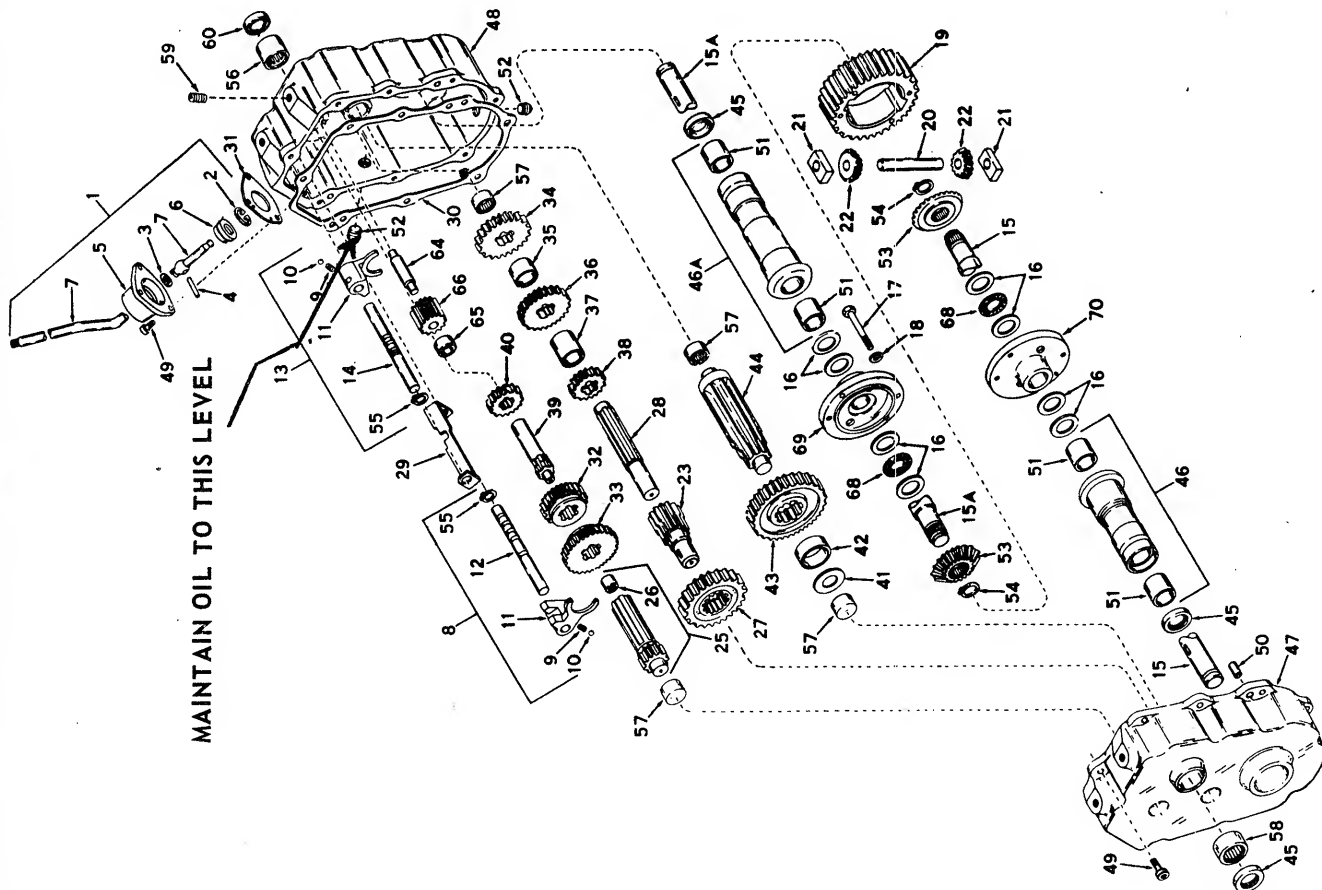
*For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

+Part of Left Handle Ass'y (complete) 310-8817

When ordering this part the prefix (first three numbers) designates the color. Use the appropriate prefix to order your parts.

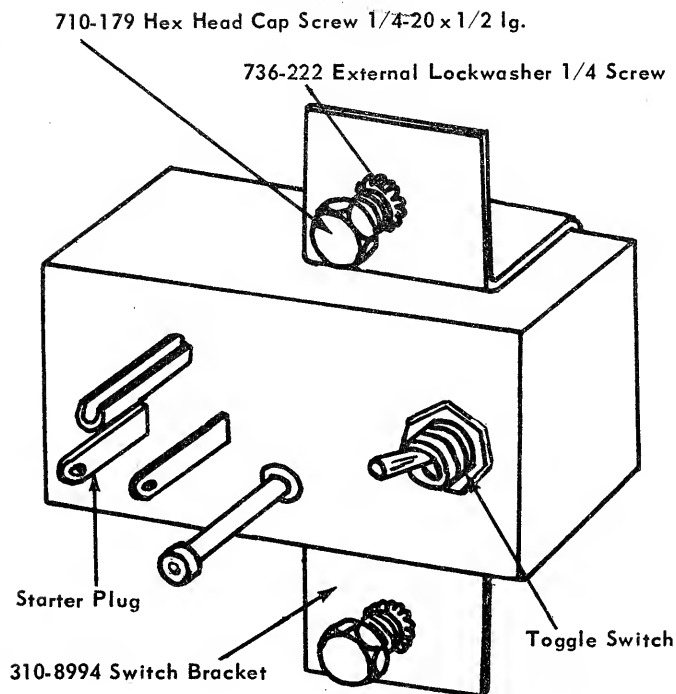
For example 313-8695 Fender Left Hand...Coppertone. 313-/Coppertone 317-/Yellow 330-/Terra Cotta (Orange Red) 347-/Scarlet Red 371-/Sierra Red

PARTS ILLUSTRATION FOR TRANSAXLE 717-125



Ref. No.	Part No.	DESCRIPTION	Ref. No.	Part No.	DESCRIPTION
1	784095	Lever & Housing Ass'y (Includes Nos. 2 thru 7)	34	778021	Gear, Spur (26 Teeth)
2	792016	Ring, Snap	35	786014	Spacer
3	792001	Ring, Quad	36	778022	Gear, Spur (22 Teeth)
4	792002	Pin, Roll	37	786015	Spacer
5	784088	Housing, Shift Lever	38	778023	Gear, Spur (16 Teeth)
6	784094	Keeper, Shift Lever	39	776015	Shaft, Input
7	784096	Lever Shift	40	778024	Spur Gear, Input Shaft
8	784056	Rod Ass'y, Shift (Includes Nos. 9 thru 12)	41	780001	Washer
9	792003	Spring	42	786017	Spacer
10	792004	Ball, Steel	43	778036	Gear, Output
11	784004	Fork, Shifter	44	778041	Pinion, Output
12	784057	Rod, Shifter	45	788008	Seal, Oil
13	784054	Rod Assembly, Shift (Includes Nos. 9, 10, 11, 14 and 55)	46	782022	Hsg. & Bushing Ass'y, L.H. Axle (Includes No. 51)
14	784055	Rod, Shifter	46A	782023	Hsg. & Bushing Ass'y, R.H. Axle (Includes No. 51)
15	774067	Axle w/2 Key Seats - L.H.	47	772045	Cover Assembly, Transaxle (Includes Nos. 57 & 58)
15A	774068	Axle w/2 Key Seats - R.H.	48	770033	Case Assembly, Transaxle (Includes Nos. 56 & 57)
16	780042	Washer, Thrust	49	792007	Screw, Socket Head Cap 1/4-20 x 3/4
17	792020	Screw, Hex Hd. Cap 1/4-20 x 2-1/4	50	786026	Pin, Dowel
18	792006	Lockwasher, 1/4"	51	780054	Bushing
19	778033	Gear, Ring	52	792010	Plug, Pipe
20	786019	Pin, Drive	53	778039	Gear, Bevel
21	786027	Block Drive	54	792018	Ring, Snap
22	778014	Pinion, Bevel	55	792017	Ring, Snap
23	776022	Pinion & Bushing Ass'y, Idler	56	780011	Bearing
25	776014	Shaft & Bearing Ass'y, Shifter (Includes No. 26)	57	780013	Bearing
26	780018	Bearing	58	780055	Bearing
27	778037	Gear, Idler	59	792012	Screw, Socket Head Set 3/8-16 x 3/8
28	776032	Shaft, Idler	60	788009	Seal, Oil
29	784074	Stop, Shifter	64	776008	Shaft, Reverse Idler
30	788026	Gasket, Case to Cover	65	786008	Spacer, Reverse Idler
31	788003	Gasket, Shift	66	778016	Idler, Reverse
32	778019	Lever Housing	68	780039	Bearing, Thrust
33	778020	Gear, Shifting	69	774029	Carrier, Differential
			70	774028	Carrier, Differential

110 VOLT ELECTRIC STARTER (147-652)



All other parts not called out by part number are available through Briggs and Stratton.

STARTING INSTRUCTIONS

1. Check engine oil. Fill to "Full" mark on dipstick.
2. Be sure fuel shut off valve is open and the spark plug wire is connected.
3. Put gear shift lever in neutral.
4. Depress clutch-brake pedal. It may be held in position by tightening the parking brake.
5. Move the throttle lever to "Choke" position.
6. Attach extension cord to starter plug on the dashboard of the tractor.
7. Plug the other end of the cord into a 110 volt grounded electric outlet.
8. Push the toggle switch to the RIGHT until the engine turns over. After the engine starts, slowly return the throttle lever to the running position. Toggle switch will return to off position when released.
9. Disconnect your 110 volt cord from the starter plug on the tractor.
10. To Stop the engine, move the throttle lever to stop position.
11. Engine may also be started with the recoil starter as explained on page 3 of the manual.

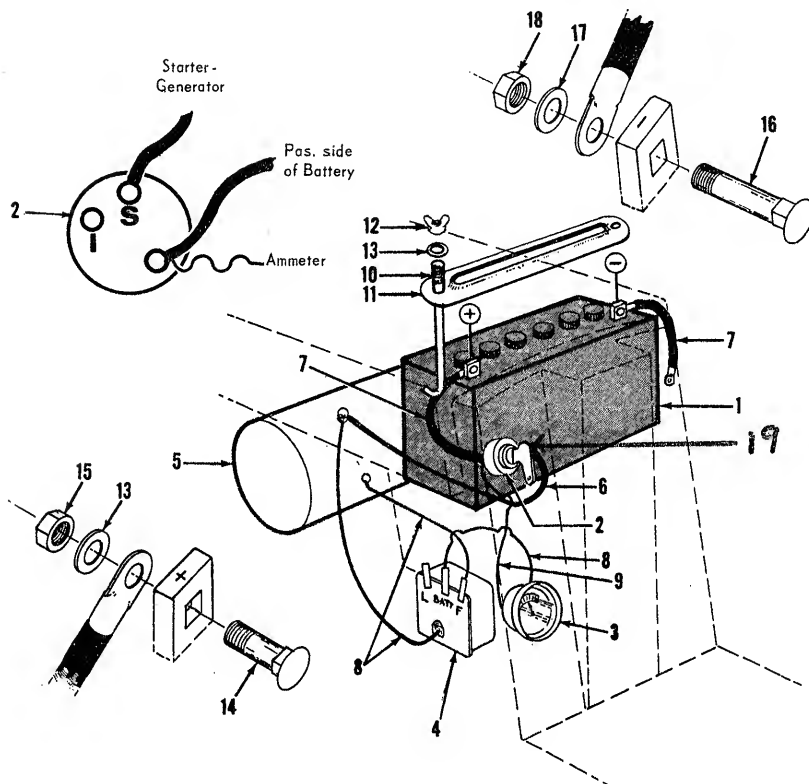
INSTRUCTIONS FOR ACTIVATING DRY CHARGED BATTERIES

1. Place battery to be filled on bench or workbench. Never activate battery in tractor. Remove vent plugs from all cells.
2. Fill each cell carefully using battery grade 1.250-1.265 specific gravity Sulfuric Acid to 3/8" above the top of the separators or to the split ring.
3. Allow battery to set for 20 minutes. Battery can then be installed, however, to have maximum capacity the battery should be placed on a charger after the 20 minutes setting period. Battery can be charged at maximum of 35 amperes until the specific gravity reading is 1.265-1.275.
4. The battery should be checked with a hydrometer after every 25 hours of operation. If the specific gravity is less than 1.225 remove battery and recharge.
5. The battery should be kept clean. Any deposits of acid should be neutralized with soda and water. Be careful not to get this solution in the cells. Coat the terminals with a thin coat of grease.
6. If the battery is not going to be used in the winter, remove the battery and store in a cool, dry place. Do not store directly on a concrete floor as this will drain the battery. Recharge whenever the specific gravity is less than 1.225.

CAUTION

Since battery acid is corrosive to metals, do not pour into any sink or drain. Rinse empty electrolyte containers and mutilate before discarding. If acid is accidentally spilled on battery during filling or charging, or on bench or clothing, etc., flush off with clear water and neutralize with soda or ammonia solution.

Model 147-660, 147-665



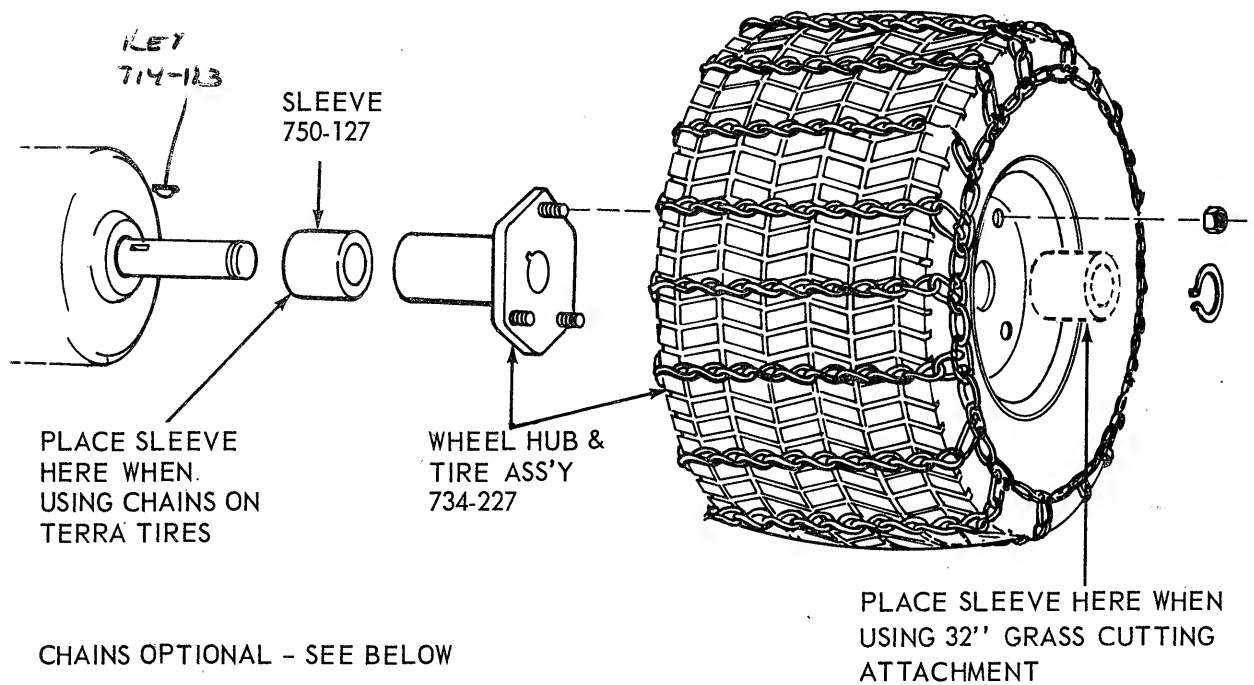
STARTING INSTRUCTIONS

1. Check engine oil. Fill to "FULL" mark on dipstick.
2. Be sure fuel shut off valve is open and the spark plug wire is connected.
3. Put gear shift lever in neutral.
4. Depress clutch-brake pedal. It may be held in position by tightening the parking brake.
5. Move the throttle lever to "CHOKE" position.
6. Insert key and turn clockwise and allow the starter to crank the engine.
7. After the engine starts, slowly return the throttle lever to the running position.
8. To stop the engine, move the throttle lever to "STOP" position.

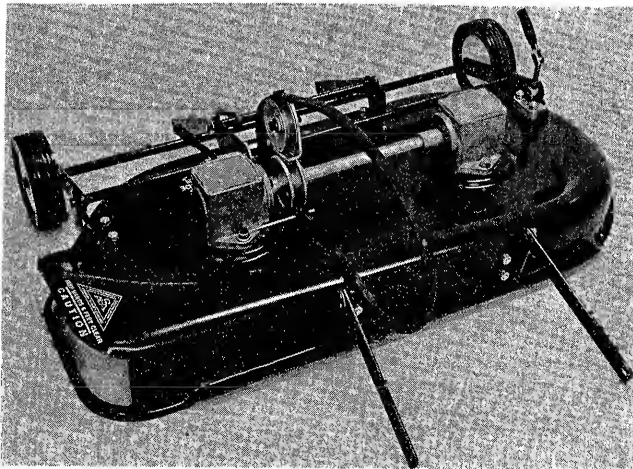
Ref. No.	Part No.	DESCRIPTION	Ref. No.	Part No.	DESCRIPTION
1	725-117	Battery - Willard Model No. HDDLM9L 7-3/4 x 5-5/32 x 7-11/32" 32 Amp Hrs.	10	711-222	Battery Hold Down Rod
2	725-118	Switch - Cole Herse 95511B	11	321-8821	Battery Hold Down
3	725-119	Ammeter - Stewart Warner D-357-W	12	712-117	Wing Nuts
4	725-120	Regulator - Delco-Remy	17 18	736-229	Spring Lockwasher 1/4"
5	----	Starter - Generator - See Engine Manual	16 18	710-134	Carriage Bolt 1/4-20 x 5/8 lg.
6	725-121	Electric Wire 17.25"	18 18	712-287	Hex Nut 1/4-20 Thd.
7	725-122	Electric Wire 7.25" (2 req'd)	14 18	710-260	Carriage Bolt 5/16-18 x 5/8 lg.
8	725-123	Electric Wire 14 Ga. 9.50" (3 req'd)	13 17	736-119	Spring Lockwasher 5/16"
9	725-124	Electric Wire 14 Ga. 3.5"	15 18	712-267	Hex Nut 5/16-18 Thd.
			19	725-128	KEY - COLE HERSE

TERRA TIRES

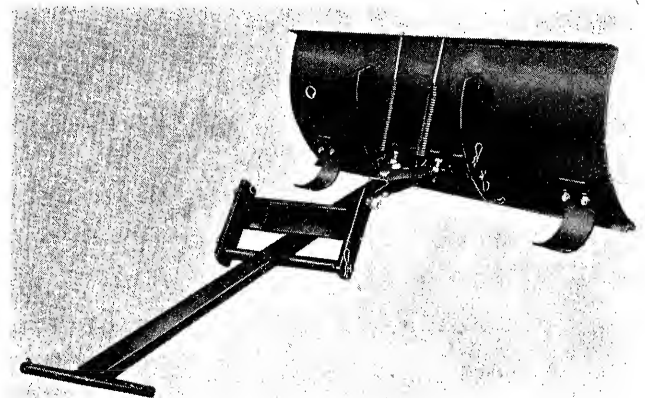
Models 147-655, 147-665



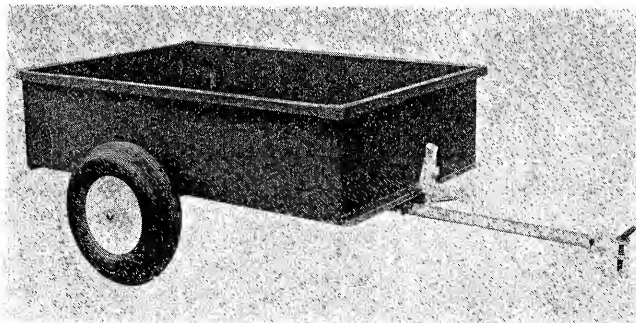
OPTIONAL EQUIPMENT



32" CUTTING UNIT 197-651



42" SNOW BLADE 197-652



10 C. FT. TRAILER 197-653

REAR CHAINS - STANDARD TIRE
16.00 x 6.50 - 197-654
REAR CHAINS - TERRA TIRE
18.00 x 9.50 - 197-656
TERRA TIRE KIT - 197-657